In re Patent Application of:
Saltiel
Serial No.: **10/649,287**
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In the Claims:

Please substitute the claims as set forth below in a complete listing of claims. Claim amendments made include no new matter and are fully supported in the application as filed or in its parent application. Language to be added is shown underlined and language to be deleted is shown struck through.

1.(previously presented) A process for the production of previtamin D, the process comprising:

a first irradiation of a reaction mixture containing provitamin D with light energy having a wavelength of approximately 254 nm; and

a second irradiation of the reaction mixture with light energy having a wavelength of approximately 313 nm, the reaction mixture containing no photosensitizer.

2.(original) The process of claim 1, wherein the first and second irradiations are sequential.

3.(original) The process of claim 1, wherein the reaction mixture further contains a solvent.

4.(original) The process of claim 1, wherein the reaction mixture further contains an organic solvent.

5.(original) The process of claim 1, wherein the reaction mixture further contains methanol.

6.(currently amended) A process for producing previtamin D, the process comprising: a first irradiation of ~~irradiating~~ a reaction mixture containing provitamin D in the absence of a photosensitizer with light energy having a wavelength of approximately from 240 to 265 nm and a second irradiation of said reaction mixture with light energy having a wavelength of approximately from 300 to less than 330 nm and in the absence of a photosensitizer.

7.(original) The process of claim 6, wherein the first and second irradiations are sequential.

8.(original) The process of claim 6, wherein the reaction mixture further contains a solvent.

9.(original) The process of claim 6, wherein the reaction mixture further contains an organic solvent.

10.(original) The process of claim 6, wherein the reaction mixture further contains methanol.

11.(currently amended) A process for producing previtamin D, the process comprising irradiating a reaction mixture containing tachysterol and ~~essentially~~ substantially no photosensitizer with light energy having a wavelength of approximately from 300 to less than 330 nm.

12.(original) The process of claim 11, wherein said wavelength consists of 313 nm.

13.(original) The process of claim 11, wherein the reaction mixture further contains a solvent.

14.(original) The process of claim 11, wherein the reaction mixture further contains an organic solvent.

15.(original) The process of claim 11, wherein the reaction mixture further contains methanol.

16.(original) A method of estimating the progress of the process of Claim 11, the method comprising:

determining ultraviolet absorption spectra for provitamin D, previtamin D, vitamin D, lumisterol, and tachysterol;

monitoring the ultraviolet absorption spectrum for the reaction mixture; and

estimating progress of the process by applying singular value decomposition analysis to the monitored ultraviolet spectrum of the reaction mixture compared to the ultraviolet spectra for provitamin D, previtamin D, vitamin D, lumisterol, and tachysterol.

17.(currently amended) The process of claim [[20]] 16, wherein the ultraviolet spectra are measured using light energy having wavelengths from approximately 230 nm to approximately 340 nm.

18.(currently amended) A process for production of a vitamin D, the process comprising:

a first irradiation of a reaction mixture containing provitamin D substantially free of photosensitizer with light energy having a wavelength of approximately 254 nm;

a second irradiation of the reaction mixture <u>substantially free of photosensitizer</u> with light energy having a wavelength of approximately 313 nm; and

heating the reaction mixture after the second irradiation.

19.(original) The process of claim 18, wherein heating consists of a temperature not exceeding 100° C.

20.(original) The process of claim 18, wherein the first and second irradiations are sequential.

21.(original) The process of claim 18, wherein the reaction mixture further comprises a solvent.

22.(original) The process of claim 18, wherein the reaction mixture further comprises an organic solvent.

23.(original) The process of claim 18, wherein the reaction mixture further comprises methanol.

24.(currently amended) A process for production of vitamin D <u>by light irradiation without the use of a photosensitizer</u>, the process comprising:

a first irradiation of a reaction mixture containing provitamin D without a photosensitizer with light energy having a wavelength of approximately from 240 to 265 nm;

a second irradiation of ~~the~~ said reaction mixture without photosensitizer with light energy having a wavelength of approximately from 300 to less than 330 nm; and

heating the reaction mixture after the second irradiation.

25.(original) The process of claim 24, wherein heating consists of a temperature not exceeding 100° C.

26.(original) The process of claim 24, wherein the first and second irradiations are sequential.

27.(original) The process of claim 24, wherein the reaction mixture further comprises a solvent.

28.(original) The process of claim 24, wherein the reaction mixture further comprises an organic solvent.

29.(original) The process of claim 24, wherein the reaction mixture further comprises methanol.